

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/750,596	COLGROVE ET AL.	
	Examiner	Art Unit	
	Hashem Farrokh	2187	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/26/06.
2. ☒ The allowed claim(s) is/are 1,3-8,14-21,27,30-32 and 34-36.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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**EXAMINER'S AMENMENT**

*The Examiner initiated a telephone interview with the Applicant (Mr. Eric A. Stephenson 38,321) on 7/6/06. The examiner informed the Applicant that in view of newly discovered prior art references (see attached Form PTO-892); the indicated allowable subject matter of dependable claim 9 reported in the previous Office Action can be now rejected. The Examiner inquired whether the Applicant would be willing to amend claims 1, 22, and 27 to include the limitations of dependent claim 2 instead. The Applicant agreed to the above proposal and performed the amendment and emailed a copy including the amended claims to the Examiner. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.*

***Please amend the claims as follows:***

1. (Currently Amended) A method comprising:  
performing a set of operations on a first data store, wherein  
~~each operation of the set of operations on the first data store performs at least~~  
~~one of~~  
~~producing modified data from data in the first data store, and~~  
~~changing a configuration of the first data store, and~~

the performing the set of operations occurs during a procedure in which selected data in the first data store is copied to a second data store; and causing the set of operations to be performed on the second data store, wherein one operation of the set of operations restores first data in the first data store from third data in a third data store; and the causing the set of operations to be performed on the second data store comprises causing second data in the second data store to be restored from third data in a fourth data store, wherein the first data and the second data are the same after restoring the first data and after causing the second data to be restored ~~if the set of operations on the first data store produces the modified data and if a portion of the modified data is not included in the selected data copied to the second data store, the second data store will be updated to include a copy of the portion of the modified data in response to performance of the set of operations on the second data store;~~ wherein the set of operations comprises: ~~an ordered subset of the set of operations, wherein operations in the ordered subset of operations are performed on both the first data store and the second data store in a sequential order.~~

2. (Cancelled)

3. (Currently Amended) ~~The method of claim 1 wherein~~ A method comprising:

performing a set of operations on a first data store, wherein the performing the set of operations occurs during a procedure in which selected data in the first data store is copied to a second data store; and  
causing the set of operations to be performed on the second data store, wherein  
one operation of the set of operations synchronizes first data in the first data store with third data in a third data store; and  
the causing the set of operations to be performed on the second data store comprises causing second data in the second data store to be synchronized with fourth data in a fourth data store ~~corresponding to the third data store~~, wherein the first data and the second data are the same after the synchronizing the first data and after the causing the second data to be synchronized.

4. (Currently Amended) The method of claim 1 wherein  
one operation of the set of operations ~~changes the configuration of the first data store by creating~~ creates a first snapshot data store related to the first data store wherein  
a first snapshot of first data in the first data store is stored in the first snapshot data store; and  
the causing the set of operations to be performed on the second data store comprises causing a second snapshot data store related to the second data store to be created, wherein  
a second snapshot of second data in the second data store is stored in the second snapshot data store, and  
the first snapshot and the second snapshot comprise data that are the same.

5. (Original) The method of claim 4 further comprising:  
establishing a replication relationship between the first snapshot data store and the second snapshot data store after the second snapshot data store is created, wherein

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the replication relationship causes subsequently modified data in the first snapshot data store to be included in selected snapshot data copied to the second snapshot data store.

6. (Previously Presented) The method of claim 5 wherein subsequently modified data are copied to the second snapshot data store when the selected data are copied to the second data store.

7. (Currently Amended) The method of claim 1 wherein if at a first point in time during the performing the set of operations, a first operation of the set of operations is performed on the first data store, and the first data store comprises ~~first~~ third data when the first operation is performed on the first data store, then at a second point in time, when the first operation is performed on the second data store, the second data store comprises a copy of the ~~first~~ third data.

8. (Original) The method of claim 1 wherein if at a first point in time during the performing the set of operations, the first data store comprises ~~first~~ third data, then at a second point in time, when the second data store represents the first data store at the first point in time, the second data store comprises a copy of the ~~first~~ third data.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Original) The method of claim 1 wherein the causing the set of operations to be performed on the second data store comprises causing at least one command that performs the set of operations to be executed on the second data store.

15. (Original) The method of claim 1 wherein the selected data comprises first data modified as a result of a write operation.

16. (Original) The method of claim 15 wherein the set of operations does not include the write operation.

17. (Original) The method of claim 1 wherein the selected data further comprise a portion of a snapshot of first data stored in the first data store, and the portion of the snapshot is modified as a result of a second write operation.

18. (Original) The method of claim 17 wherein the set of operations does not include the second write operation.

19. (Original) The method of claim 1 wherein the second data store further comprises a copy of the selected data after copying the selected data to the second data store.

20. (Original) The method of claim 1 further comprising:  
upon failure of a primary node associated with the first data storage,  
identifying a portion of the selected data in the first data store, wherein

the portion has not been copied to the second data store, and causing only the portion to be copied to the second data store such that the first data and the second data are the same.

21. (Original) The method of claim 1 further comprising:

identifying second modified data in the first data storage, wherein

the second modified data were produced before the set of operations was performed on the first data storage and after the set of operations was performed on the second data storage, and

the second modified data are not included in the selected data copied to the second data store; and

causing only the second modified data to be copied to the second data store such that the second data and the first data are the same.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Currently Amended) A computer storage readable medium comprising:

performing instructions configured to perform a set of operations on a first data store, wherein

~~each operation of the set of operations performed on the first data store performs at least one of~~

~~producing modified data from first data in the first data store, and~~

~~changing a configuration of the first data store, and~~

performing the set of operations occurs during a procedure in which

selected data in the first data store is copied to a second data store; and

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causing instructions configured to cause the set of operations to be performed on the second data store, wherein one operation of the set of operations restores first data in the first data store from third data in a third data store; and  
the causing the set of operations to be performed on the second data store comprises causing second data in the second data store to be restored from third data in a fourth data store, wherein  
the first data and the second data are the same after restoring the first data and after causing the second data to be restored  
~~if the set of operations performed on the first data store produces the modified data and a portion of the modified data is not included in the selected data copied to the second data store,~~  
~~updating the second data store to include a copy of the portion of the modified data in response to performance of the set of operations on the second data store; wherein~~  
~~the set of operations comprises:~~  
~~an ordered subset of the set of operations, wherein~~  
~~operations in the ordered subset of operations are performed on both the first data store and the second data store in a sequential order.~~

28. (Cancelled)

29. (Cancelled)

30. (Previously Presented) The computer-readable medium of claim 27 further comprising:  
inserting instructions configured to insert a command in the selected data copied from the first data store to the second data store to produce the copy of the modified data at the specified point.

31. (Previously Presented) The computer-readable medium of claim 27 wherein



the set of operations further comprises:

an unordered subset of the set of operations, wherein

the unordered subset is performed at a specified point in the sequential order,

the specified point in the sequential order is between a first respective point in the sequential order and a second respective point in the sequential order,

the first respective point is adjacent in the sequential order to the second respective point, and

each operation in the unordered subset can be performed concurrently with respect to other operations in the unordered subset.

32. (Previously Presented) A computer system comprising:  
a processor for executing instructions; and  
the computer-readable medium of claim 27 wherein  
the computer-readable medium is coupled to the processor.

33. (Cancelled)

34. (Previously Presented) A method comprising:  
performing a set of operations on a first data store, wherein  
each operation of the set of operations on the first data store performs at least one of  
producing modified data from data in the first data store, and  
changing a configuration of the first data store, and  
the performing the set of operations occurs during a procedure in which selected data in the first data store is copied to a second data store; and  
causing the set of operations to be performed on the second data store, wherein  
if the set of operations on the first data store produces the modified data and if a portion of the modified data is not included in the selected data copied to

the second data store, the second data store will be updated to include a copy of the portion of the modified data in response to performance of the set of operations on the second data store;

wherein one operation of the set of operations changes the configuration of the first data store by creating a first snapshot data store related to the first data store wherein the first snapshot of first data in the first data store is stored in the first snapshot data store; and

the causing the set of operations to be performed on the second data store comprises causing a second snapshot data store related to the second data store to be created, wherein

a second snapshot of second data in the second data store is stored in the second snapshot data store, and

the first snapshot and the second snapshot comprise data that are the same;

establishing a replication relationship between the first snapshot data store and the second snapshot data store after the second snapshot data store is created, wherein

the replication relationship causes subsequently modified data in the first snapshot data store to be included in selected snapshot data copied to the second snapshot data store.

35. (New) The method of claim 1 wherein the set of operations comprises:

an ordered subset of the set of operations, wherein operations in the ordered subset of operations are performed on both the first data store and the second data store in a sequential order.

36. (New) The method of claim 1 wherein the set of operations further comprises:

an unordered subset of the set of operations, wherein

- the unordered subset is performed at a specified point in the sequential order,
- the specified point in the sequential order is between a first respective point in the sequential order and a second respective point in the sequential order,
- the first respective point is adjacent in the sequential order to the second respective point, and

each operation in the unordered subset can be performed concurrently with respect to other operations in the unordered subset.

**ALLOWABLE SUBJECT MATTER:**

The following is an **Examiner's Statement of Reasons for Allowance** See MPEP 1302.14

*The prior art of record, including that of Ohno et al., Fuibayashi, and Young, teach related restoring systems but fail to teach the combination including the limitations of:*

1. *The primary reason for allowance of claims 1, 3-8, 14-21, 27, 30-32 and 35-36 in instant application is the combination with the inclusion of following limitations: **wherein one operation of the set of operations restores first data in the first data store from third data in a third data store; and the causing the set of operations to be performed on the second data store comprises causing second data in the second data store to be restored from third data in a fourth data store, wherein the first data and the second data are the same after restoring the first data and after causing the second data to be restored.***

2. *The primary reasons for allowance of independent claim 34 in the instant application is the combination with the inclusion of the following limitations: **the first snapshot of first data in the first data store is stored in the first snapshot data store; and the causing the set of operations to be performed on the second data store comprises causing a second snapshot data store related to the second data store to be created, wherein a second snapshot of second data in the second data store is stored in the second snapshot data store, and the first snapshot and the second snapshot comprise data that are the same establishing a replication relationship between the first snapshot data store and the second snapshot data store after the second snapshot data store is created.***

*Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays should be clearly labeled "Comments on Statement of Reasons for Allowance"*

*Any inquiry concerning this communication should be directed to Hashem Farrokh whose telephone number is (571) 272-4193. The examiner can normally be reached Monday-Friday from **8:00 AM to 5:00 PM.***

*If attempt to reach the above noted Examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Donald A Sparks, can be reached on (571) 272-4201. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on*

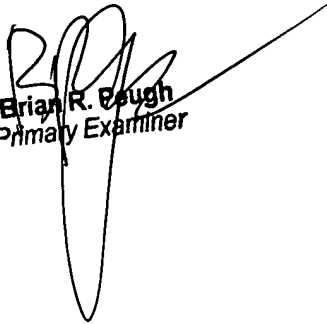
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*access to the Private PAIR system, contact the Electronic Business Center (EBS) at  
866-217-9197 (toll-free).*

HH

HF

2006-07-06

  
Brian R. Daugh  
Primary Examiner